

# Green Gas

## The opportunity for Britain



November 2016

**The 14th of March 2016 was an historic day for Britain. On that day, Energy Minister Andrea Leadsom committed the Government to set in law a post-2050 goal of net zero emissions. Yet to get there, Britain is going to have to work on a new frontier – to remove the carbon emissions from our nation's heating.**

This is a major challenge. In the longer term, we will never remove the carbon from our economy if we cannot remove the carbon from our heating, which accounts for around 45% of our total energy use.

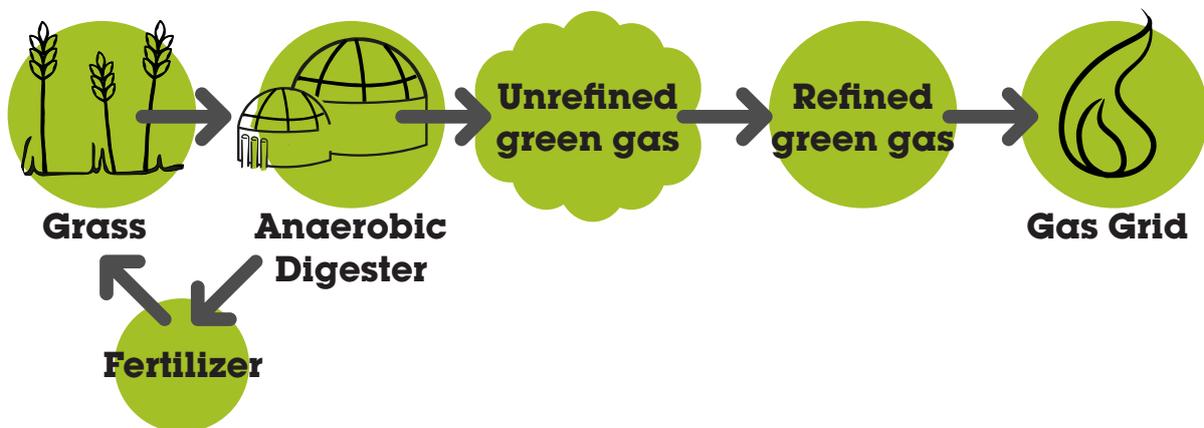
We believe that we have found a solution that could play a significant part in this: Green Gas Mills.

### A beginner's guide to the Green Gas Mill

The way that Anaerobic Digestion works is pretty simple. Organic material (called a 'feedstock') is broken down by bacteria in an oxygen-free container, producing two main outputs: biogas and a rich organic fertiliser.

Some AD plants in Britain burn the biogas to produce electricity in small on-site generators. Our Green Gas Mills go one step further. The biogas is 'scrubbed' and upgraded to the UK's high environmental and safety standards – to produce biomethane – which can be fed directly into the national gas network to replace fossil-fuel methane that's used for heating and cooking in UK homes. That's the beauty of the Green Gas Mill: you can be cooking on Green Gas and you won't even notice.

What is revolutionary about our Green Gas Mills is the use of naturally occurring grasses as a feedstock, to produce truly renewable gas that recycles existing carbon in the atmosphere that's been absorbed by the grass.



### The potential for Green Gas in Britain

**“The highest potential for additional renewable heat is from bio-methane injection into the gas grid...” – Amber Rudd, Secretary for Energy and Climate Change letter to ministers, 29 October 2015**

Bio-methane production is already growing rapidly. In 2012 the UK did not have a single bio-methane gas mill, however by the end of 2015 it had 50 mills producing an estimated 2.5TWh of renewable heat energy, enough to supply heat to 190,000 homes.

A typical Green Gas Mill at 5MW will require about 3,000 acres of grassland to supply 3,500 homes with all the gas they need. That's less than one acre per household.

The construction of 1,000 Green Gas Mills, each of 5MW capacity, would be enough to make up the current shortfall against our 12% target and would create around 15,000 jobs and pump £1.5 billion into the rural economy.

In the long term, with domestic gas demand expected to fall, each 5MW Green Gas Mill should supply almost 5,000 homes. Meaning Britain should have enough suitable land to supply the overwhelming majority of household heating using Green Gas Mills fed by grass – all without reducing Britain's agricultural production.

This would require the construction of 5,000 Green Gas Mills, each of 5MW capacity, would be enough to supply 97% of

British households and would create around 75,000 jobs and pump £7.5 billion into the rural economy. This would involve a massive scaling up of Green Gas, but it shows how big the potential is.

## Green Gas benefits

Green Gas Mills can decarbonise our heating and help tackle climate change. They have other benefits too and we see four big ones:

### 1. **Boosting the rural economy and supporting our farmers**

As farm incomes are falling across the board, Green Gas Mills bring significant economic benefits to local rural communities. Each Green Gas Mill will create around 30 jobs, contribute £1.5 million per year, or £30 million in their operating lifetime, to the local rural economy.

### 2. **Enhancing the food productivity of arable farmland by improving soil health**

The varieties of naturally occurring grasses we use in our Green Gas Mills can enhance the food productivity of arable farmland and improve soil health when used in crop rotation cycles. They also produce an organic fertiliser as a co-product of the process, which can be used to turn lower quality land suitable for growing feed for livestock into more productive land suitable for growing food crops for humans.

### 3. **Creating habitats for wildlife**

Since 1930 it is estimated that Britain has lost 97% of its flower rich grassland, which has caused the decline of many species which play a vital role in the ecosystem. Our Green Gas Mills will help to reverse this trend by creating an economic argument for the stewardship of species rich grassland.

### 4. **Reducing our reliance on fossil fuel imports**

While the UK's gas consumption overall is going down, the amount we are importing is going up as the North Sea runs out. The UK Oil and Gas Authority has projected that by 2030 the UK could be importing three quarters of all our gas. Green Gas Mills have the potential to change that.

## Green gas Mills: Doing good by doing it right

Ecotricity is committed to making sure our feedstocks never contribute to a reduction in food crop production. The amount of available land is growing, as the area of grassland used for grazing cattle has almost halved since 1990. That means we can grow grass on marginal grazing land and lower quality arable farmland that is only used for growing feed not food crops. We will also use grass grown temporarily on arable farmland for two to four years as a break-crop in rotation with food crops to help improve the soil.

## Green Gas: the antidote to fracking

One area where we think that Green Gas Mills can catch the public imagination is as a virtually carbon-neutral alternative to fracking.

Among those who support fracking the top three reasons people give are: needing to use all available energy sources (35%); reducing dependence on conventional fossil fuels (34%); and reducing dependence from other countries for UK's energy supply (32%). We believe our Green Gas Mills can help us meet all three of those objectives without risk of environmental damage, threat to our water supplies or negative impacts on local communities from diesel fuelled trucks loaded with chemicals pounding up and down the roads.

The message we want to get out is this: Green Gas is the antidote to fracking.

## How can we support Green Gas Mills?

Green Gas Mills are in their infancy. We think they have great potential, but to get going and show what can be achieved we need support from policymakers. As a priority, we hope the government will:

- Maintain support to bio-methane producers through the non-domestic Renewable Heat Incentive (RHI)
- Clarify regulation and classification of permitted feedstocks under the RHI to ensure that feedstocks like natural grasses, which do not threaten food production, continue to be supported
- Avoid duplicating the regulations in place for bio-methane injection with extra rules under the RHI
- Provide further clarity post-2020 on targets for the decarbonisation of heating.

Decarbonising heating is the next big challenge as we strive to become Green Britain. We believe Green Gas Mills can play a major part in meeting that challenge. We are looking forward to proving it!

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